

by the motor branch of the fifth nerve, or that supplied by branches of the facial; while the main branches of the facial nerves were seen during the operation, the delay required for the application of sutures would have prolonged the operation beyond all hope of the patient's survival.—*N. Y. Surgical Society*. April 13, 1887.

**V. Closure of the Jaws and Its Treatment.** By J. EWING MEARS, M.D., (Philadelphia). This paper consists of a summary of the subject with the author's method of treatment as used in six cases, five of which were due to bony ankylosis in the temporo-maxillary joint. The methods previously suggested, were: (1) Division of the cicatricial tissues. Section of the masseter and temporal muscles, as originally suggested by Carnochan, when division of the cicatricial bands is insufficient. (2) Excision, more or less complete, of the cicatricial bands or osseous formations, and the subsequent employment in case of the former, for a long period of time, of two wedges and levers to maintain the separation of the jaws. Transplantation of mucous membrane to cover the surface of the wound, as suggested by Dieffenbach, or transplantation of skin, as practised by Jaesche. (3) Division of the cicatricial tissues, and the adaptation of metal shields, not only to prevent recontraction, but to re-establish the sulcus of mucous membrane at the base of the alveolus. (4) Dieffenbach's method of simple division of the ramus of the jaw—and the formation of a false joint *behind* the point of contraction. (5) Esmarch's suggestion that the joint be formed in front of the contraction, and that a segment of bone be removed for this purpose—by external incision. (6) The formation of a false joint *in front* of the contraction by simple division of the bone, made by forceps applied within the mouth—Rizzoli's method. In closure due to ankylosis of the temporo-maxillary articulation, the methods practised are: (1) Formation of a false joint by exsection of the jaw, by external incision (Carnochan's suggestion), or the division of the ramus from within the mouth, either by saw, forceps or chisel. (2) Exsection of the condyle with a portion of the neck, the incision being external, as practised by Prof. S. D. Gross. The objections were as follows: (1) To incision and excision. The reformation of the cicatrix and the great pain to which the patient

is subjected in the use of wedges, levers, and screws—the difficulties of securing flaps of mucous membrane and skin from adjacent parts and their successful transplantation. The almost universal failures. (2) Division of the cicatricial bands and use of shields. The pain and inconvenience experienced by the patient in the use of the shields, and difficulty in obtaining the full coöperation of the patient in carrying out the necessary manipulations within the mouth. (3) Section of the ramus *behind* the contraction—Dieffenbach's method. The difficulty of obtaining a permanent false joint after simple section of the bone. (4) Esmarch's method. The loss of one-half of the jaw for the purposes of mastication, where excision is made in front of the contraction. Its inapplicability when both sides are affected, and the deformity which results. (5) Rizzoli's method. The difficulty in accomplishing the formation of a false joint by simple division of the bone—the tendency to reunion being much greater than when a segment is removed. His first case, one of jaw closure due to the formation of osseous and cicatricial bands involving the left side, the result of a gunshot wound received at the age of 2 years, eighteen years previously, consisted in the exposure of the temporo-maxillary articulation by an incision along and below the zygomatic arch, the excision of nearly the entire ramus of the jaw with the coronoid and condyloid processes, section of the masseter, temporal and external pterygoid muscles, The osseous plate which had formed between the alveolar processes on the palatal surface was sawn through, the saw having been introduced between the teeth to accomplish this purpose. The jaws were now separated to the extent of an inch. The subsequent treatment consisted in the daily use, for a period of four weeks, of the author's mouth-gag, during the formation of the artificial articulation, with the result of securing a separation of one and a quarter inches. About four years after the operation, he found the separation of the jaws to be over *one and a quarter inches*, and the movements in every respect normal. The patient was unable to recognize any difference, in motion or in sensation, between the natural jaw on the right side and that formed upon the left. Later experience, however, caused some modifications of the method, an external cicatrix being avoided by excision of the upper

portion of the ramus, the coronoid and the condyloid processes through the mouth. The plan of operation now recommended is as follows: A straight sharp-pointed bistoury is introduced beneath the masseter muscle on a level with the last molar tooth of the lower jaw. Into the wound thus made the blade of an Adams's saw is passed and the ramus sawn through. The periosteum, with the overlying masseter muscle, is raised by the periosteal elevator, and the wound thus enlarged. The insertion of the temporal muscle is now divided by a probe-pointed bistoury. The tissues on the inner surface are separated by the elevator, the bone seized by the lion-jawed forceps, and an effort made to dislodge it by forcibly twisting it outward. If it yields at the neck of the condyle, the process is afterward chiseled out. If sufficient space is acquired without removal of the firmly ankylosed process, it is permitted to remain, the object being to provide ample space for the formation of an artificial joint. Section of the masseter muscle is made if its tense condition demands it. Hæmorrhage which arises from the division of muscular arterial branches, and possibly of the inferior dental artery, is controlled by pressure effected by packing the wound-cavity with sponges. Wounding of the internal maxillary artery is to be avoided by careful use of the instrument in close contact with the bone in the upper and inner portions.

Section of the inferior dental nerve is likely to occur, producing anæsthesia in the teeth, and regions of the chin supplied by its mental branch. In one case in which this occurred, he observed a gradual restoration of the function. In another, anæsthesia still exists, although nearly a year has elapsed since the operation. The wound-cavity is packed with iodoform gauze,  $7\frac{1}{2}\%$ , and renewed every third day. Manipulation with the mouth-gag is instituted at the end of a week and maintained for a varying period—from six to eight weeks or longer, according to the requirements of the case. This manipulation gives no pain in the newly formed joint. In two instances the renewal of motion has caused pain in the sound articulation. The use of the ordinary chewing-gum, assists materially in maintaining the movements of the jaw during the formation of the false articulation.—*Jour. Am. Med. Assn.* April 16, 1887.